ONC PCAST Report Hearing

The Path Ahead

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Review of "The Path Forward"

1. Recommendations on an Universal Exchange Language
2. Corrections to the Report regarding Open Source & VistA
3. How Meaningful Use is Compelling the Mainstream Market

Universal Exchange Language

Fully Support Goals

- Health care is collaborative
- Information sharing infrastructure must be open and collaborative
- Network effect will drive value of system and pervasive adoption

Cultivating the HIT ecosystem to make it happen:

1. Assure the business model drivers before finalizing standard as ecosystem depends on it.
2. Open source the project, platform and all the tools. Model on the Internet, but accelerate thru open source.
3. Resist the convention wisdom that health care information is so unique: leverage business models and existing standards.
4. Avoid "going science project": reinventing for health care or using existing standards in non-standard ways.
5. This will assure the innovator and user base is as broad as possible.

VistA: Correct the Conventional Wisdom

"VistA has been made available in open source but **lacks the flexibility** of other commercial systems, so it is not widely adopted **except by some safety net** organizations."

- Extremely Flexible
  - Broadly deployed across the continuum and all settings
  - Challenge is to manage its configuration, too flexible at times
  - Flexibility is not a word often associated with commercial EHR systems

- Deployed Broadly
  - Countries: India, Mexico, American Samoa, Jordan, Egypt, Finland, Germany, Czech Republic, Uganda, Nigeria, Colombia, Pakistan (12 total)
  - US States: Indian Health Service (~33) Medsphere (12)
  - Overall Hospitals >100, Ambulatory Clinics >340
  - Medsphere: 28 facilities with ~3000 beds
  - Lutheran Medical Center, Brooklyn: 476 beds, 700 MD's, 460K pts, 93% CPOE adoption in 30 days.

http://www.hardhats.org/adopters/vista_adopters.html

KP & VHA: Investment & Cost

"Some healthcare organizations have overcome at least some of these barriers and successfully adopted electronic systems that measurably improve care within their own organization. Kaiser Permanente and the Veterans Health Administration are notable examples. Other leading hospitals and clinics also employ electronic record systems that allow them to consolidate patient health data generated within their organizations. However, even these successes, upon closer examination, highlight the limitations of current approaches. They are usually **"one offs,"** designed for the particular organization, not for a wide range of other types of practices."

- Clearly, these early adopters invested billions in their successful systems. In the case of the VA, it is estimated that the investment in VistA was ~8 billion dollars.

- The key difference is that this investment in VistA is not a "one-off". It has been open-sourced and is being adopted broadly. The tax payers investment is paying off in the mainstream market. Any health care enterprise can get the system and source code without any costly software licenses. They can invest the money that save into support and value added services. Dollars and jobs stay local.

- In West Virginia for comparison, VistA has been deployed across the West Virginia Department of Health and Human Resources which has 750 beds across their 9 hospitals for $9 million dollars. The University of West Virginia implemented a system similar to KP's HealthConnect in its 450 bed facilities at a cost $90 million. Ten times the cost.

- This is a living example of leveraging federal investment to cost effectively drive adoption of HIT for Meaningful Use to underserved market segments.

http://www.wvuhealthcare.com/newsrelease

Open Source Mentioned Only Once

- The term "Open Source" was mentioned only once in the 108 page report.
- In commenting on the report Google CEO Eric Schmidt, a PCAST Member, mentioned open source multiple time and suggested it was the path to "The Path Forward".
- "If I were not doing what I'm doing and I wanted to do something in health care … I would go to all of the research universities and would try to figure out where the best, interesting IT software is that can be **open-sourced**," "My guess is that a platform like that would be remarkably different from the platforms that we are using today,"
- Schmidt said that using such an **open-source** strategy — giving programmers the freedom to modify and distribute software — is a proven way to fix disparate software architectures. It's the same development strategy that brought about the modern internet and "all the other technologies that you use every day."
- Mr. Schmidt announced recently that he was stepping down as CEO at Google. Maybe to do something in health care?

WSJ HC Blog- 2011 JP Morgan Healthcare Conference

Model on OSS Example: The MIRTH Project

- Healthcare could not operate as a true system without widely accessible, easy to deploy, standards-based interface engines.
- Proprietary and homegrown systems are expensive, inflexible, created vendor lock-in, and required arcane coding skills not available within many hospital IT organizations.
- Mirth Connect interface engine has become the most widely downloaded open source software for healthcare data integration, achieving over **85,000** worldwide downloads since its launch.
- The Mirth contributor and user community now stands at over **8,000** registered users representing global leaders and innovators in healthcare interoperability.
- The project has expanded its focus beyond the interface engine to tackle related challenges such as results delivery and enterprise-wide master patient indexing.

The Path to Mainstream Adoption

1. Crossing the Chasm

2. Service Model not Vendor

3. Collaboration & Control

- While others have focused on the definition of the term "Meaningful Use", it is critical to analyze why use has been so low and what this definition and certification can do to drive broad adoption.

- The HIT industry has been developing electronic heath record solutions for over 20 years. But as we sit here in 2009, the vast majority provider organizations have not fully implemented EHR's. Why?

- To get to the core reasons, we should look outside of heath care at technology adoption in general.

1. Crossing the Chasm

- The first reason is that EHR's have not "Crossed the Chasm". The natural history of technology adoption proceeds in stages: the early, the mainstream and the laggards. Geoffrey Moore describes the challenge of moving from the early to mainstream adoption as "Crossing the Chasm". With the low level of EHR adoption (e.g. 1.5% in US acute care hospitals), clearly EHR solutions have not "Crossed the Chasm" to achieve mainstream adoption. The challenge of "Crossing the Chasm" is that the solutions developed by vendors in partnership with their early adopters are often too complex and thus too expensive.

- This is because early adopters are well funded, innovative and comprehensive in their product vision and requirements. They design for the 100% case, where all potential requirements must be considered. Thus, the result are complex solutions that the mainstream see as "too much", too complex and too costly (e.g. the Newton vs. The Palm Pilot). The early adopters also believe that you must deploy the comprehensive solution, they see it as the holy grail. There is a fear that if customers don't do the whole thing right off they will never get there. Well, the iPhone blows the vision for the Newton away.

- In HIT, early adopters have developed the concept of the "full-blown EHR" which while it may be their holy grail has not been widely adopted. Adoption in the mainstream occurs when there are solutions are translated, streamlined and simplified based on the Pareto's Principle, the 80/20 design rule. Less is more for this vast majority of resource strapped health care organizations.

2. Service Model not Vendor

- The second reason is that the proprietary software vendor business model does not serve the mainstream market well. Proprietary SW model sells licenses for software and services for implementation and maintenance. Their business model is based on the customers' dependence on their code. The more time and services you need the more money they make. Complexity is good. Project extensions are routine and are the customers' fault. Challenging interoperability is a big revenue opportunity. Vendor-lock is a business model.

- The service business model is better suited for mainstream technology customers who often do not have the capital or resources to 'own' their own technology or do they want to. They want services they can pay for out of operations budgets and someone to partner with them on results. Vendors sell software while mainstream adopters need help getting "meaningful use". Vendors do get paid more for adoption or results. Service companies must earn their money everyday. This is why Redhat has the highest customer satisfaction in all of high tech while Microsoft does not.

- In the customer relationship management (CRM) industry, Seibel sold complex software to the early adopters. Then Saleforce.com provided a much simpler more adoptable flexible solution as a service, which was affordable by the mainstream. Now the open-source company, SugarCRM is driving the price points down to where these solutions are affordable and useable by any sized organization. This shift is occurring in HIT.

3. Collaboration & Customer Control

- The final reason is that the proprietary model does not support collaboration and customer control. Health care is collaborative. Interoperability requires collaboration. Attaining "Meaningful Use" requires customer control.

- The open source and service oriented business models are the needed disruptive innovations that will leapfrog health care forward. As Clayton Christensen defined in the Innovators Dilemma: "A disruptive innovation is a technology that brings a much more affordable product or service that is much simpler to use in the market." "and so, it allows a whole new population of consumers to afford to own and have the skill to use...., whereas historically, the ability was limited to people who had a lot of money or a lot of skill".

- Driving "Meaningful Use" into the mainstream will be supported by:
  - Certifying on adoption, efficiency, interoperability, quality
  - Certifying implementations not codebases, the use of the tool, not the tool
  - Assuring open source can compete on cost, collaboration and control
  - Leveraging VistA and RPMS EHR as public assets and as a public utility
  - Adding reforms supporting paying for quality

- These actions will allow a service industry to develop that helps providers get to "Meaningful Use" and quality care. Providers will have the money and opportunity to invest in getting use and to their desired results.

Testimony to NCVHS 2009 Hearing on Meaningful Use

Mainstream Meaningful Use

- The mainstream market has mobilized on the ARRA Meaningful Use opportunity.
- We have seen a dramatic increase in serious interest and urgency.
- It has made EHR's an imperative and has compelled organizations to move and no longer wait.
- The discussion has shifted from "do you like" features and functions to proving a systems adoption, meaningful use, value and outcomes.
- The MU roadmap allows a much more focused project, one based on meaningful priorities.
- This focus has helped align executive, IT and clinical teams within the organizations.
- ARRA payments may be considered subsidies in other markets segments where that are a drop in the overall cost bucket.
- In the mainstream market, these resource strapped organizations that are most dependent on Medicaid and Medicare share can more than pay for their systems with the ARRA dollars.

Mainstream MU: 200 Bed County Hospital

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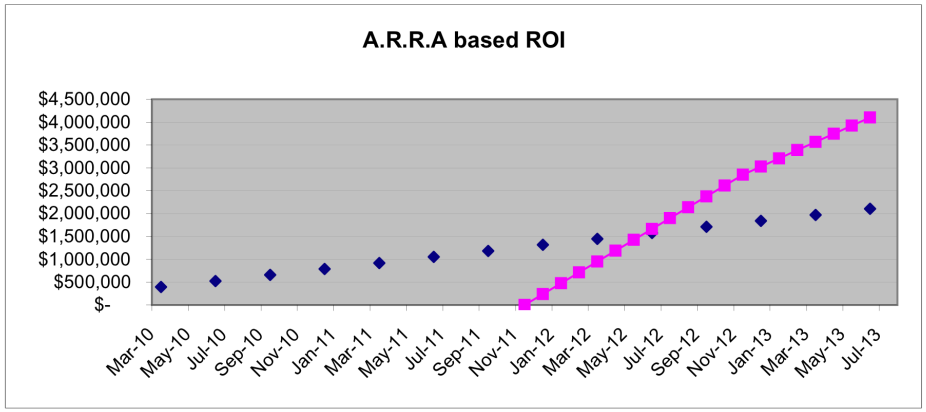
Hospital Name	Current Medicare %	Current Medicaid %
[redacted] Medical Center	6.1%	47%

* based on data available from 2009

ARRA Year 1	ARRA Year 2	ARRA Year 3	ARRA Year 4	ARRA Year 5	Max HIT Funding
$ 2,851,257	$ 2,138,443	$ 1,425,628	$ 712,814	$ -	$ 7,128,142

Estimated Total MSC Subscription*	Estimated Quartely Investment	Excess ARRA Over 5 Yr. Subscription	Estimated Time to ROI (months)
$ 3,942,047	$ 197,102	$ 3,186,096	27.0



ARRA	$7.1 m
Cost	$3.9 m
Save	$3.2 m

Does not include annual inflationary index increase
Estimates based on customer provided historical data; actual ARRA funding will vary
Stimulus Funding begins October 2011
Subscription and Stimulus Funding are paid and received in equal monthly amounts

Mainstream MU: 300 Bed Private Hospital

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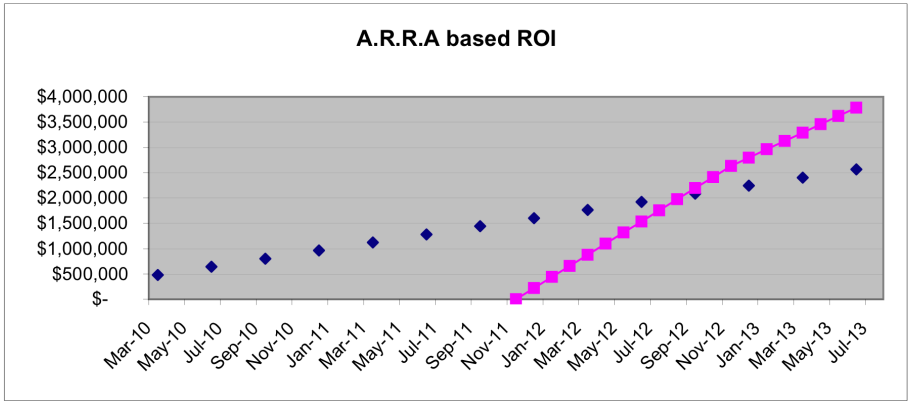
Hospital Name	Current Medicare %	Current Medicaid %
[redacted]	36.5%	6%

* based on data available from 2009

ARRA Year 1	ARRA Year 2	ARRA Year 3	ARRA Year 4	ARRA Year 5	Max HIT Funding
$ 2,633,781	$ 1,975,336	$ 1,316,890	$ 658,445	$ -	$ 6,584,452

Estimated Total MSC Subscription*	Estimated Quartely Investment	Excess ARRA Over 5 Yr. Subscription	Estimated Time to ROI (months)
$ 4,809,377	$ 240,469	$ 1,775,075	30.0



ARRA	$6.5 m
Cost	$4.8 m
Save	$1.7 m

Does not include annual inflationary index increase
Estimates based on customer provided historical data; actual ARRA funding will vary
Stimulus Funding begins October 2011
Subscription and Stimulus Funding are paid and received in equal monthly amounts